

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended): An actuator, comprising:

a housing and a motor and wave gear reduction drive disposed adjacently within the housing along a center axis of the housing;
the wave gear reduction drive including a circular, rigid internal gear, a circular, flexible external gear that is capable of radial elastic displacement, and a wave generator that radially displaces the flexible external gear into partial engagement with the rigid internal gear while circumferentially rotating portions of the partial engagement;

the flexible external gear including a cylindrical body portion that is capable of radial elastic displacement, an annular diaphragm that extends radially inward or outward from an end of the body portion, and a boss formed as a continuous part of an inner or outer edge of the diaphragm, the boss provided with a through-hole;

the wave generator including a rigid cam plate and a wave bearing within inner and outer rings capable of radial elastic displacement disposed on the peripheral surface of the cam plate, with the cam plate being driven to rotate by the motor;

the motor having a rotational hollow shaft that includes a motor shaft portion to which a rotor is attached and an extended shaft portion that extends from an end of the motor shaft portion towards the wave gear reduction drive, the wave generator

cam plate being formed integrally on the peripheral surface of the extended shaft portion;

sandwiching the portion at which the cam plate is integrally formed, the motor shaft portion of the rotational shaft being rotatably supported in the housing via a first bearing, and the wave gear reduction drive end of the rotational shaft being rotatably supported by the flexible external gear boss via a second bearing;

the through-hole of the flexible external gear boss being concentric with the hollow shaft;

an output shaft being mounted to the flexible external gear boss and rotatably located inside the hollow rotational shaft of the motor and rotatably supported in the housing via a cross roller bearing, the cross roller bearing being located in axial alignment with the diaphragm and the flexible external gear boss such that the cross roller bearing is located externally of the diaphragm and the flexible external gear boss; and

the cross roller bearing, the second bearing, the wave bearing, and the first bearing located in this order from a side of the wave gear reduction drive along the center axis of the housing.

2. (Original) The actuator according to claim 1, wherein an internal partition separates the housing into a space where the motor is installed and a space where the wave gear reduction drive is installed.

3. (Original) The actuator according to claim 2, wherein the rigid internal gear and partition are an integrally formed single component.

4. (Previously Presented) The actuator according to claim 1, wherein the flexible external gear is of a cup shape having the annular diaphragm that extends radially inward from an end of the body portion and the boss that is formed as a continuous part of the inner edge of the diaphragm, and the second bearing is supported by an annular bearing holder attached to the boss.

5. (Previously Presented) The actuator according to claim 1, wherein the rotational shaft has a second extended shaft portion that extends from the other end of the motor shaft portion, with an encoder being attached to the second extended shaft portion.

6. (Canceled)

7. (Previously Presented) The actuator according to claim 1, wherein the output shaft is accessible from both axial ends of the actuator.

8. (Previously Presented) The actuator according to claim 1, further comprising a stator, wherein the rigid internal gear and the stator are fixed to the housing.

9. (Previously Presented) The actuator according to claim 8, wherein the rigid internal gear and the stator are fixed to a common portion of the housing.

10. (Previously Presented) The actuator according to claim 1, wherein the cross roller bearing is arranged axially external of the second bearing.

11. (Previously Presented) The actuator according to claim 10, wherein the cross roller bearing is not in radial alignment with the second bearing.